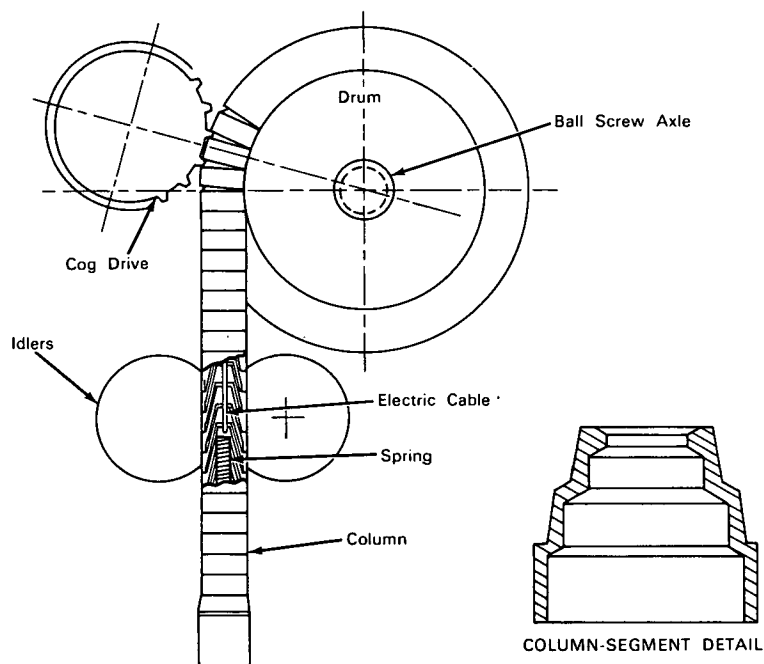


# NASA TECH BRIEF



NASA Tech Briefs are issued by the Technology Utilization Division to summarize specific technical innovations derived from the space program. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151.

## Extendible Column Can Be Stowed on Drum



**The problem:** Designing a column or mast that is rigid in compression but sufficiently flexible to be coiled for storage on a circular drum.

**The solution:** A column formed from a series of nesting segments held together by an internal spring and/or an internal cable. The column can be coiled on a drum or extended into a rigid structure of variable length.

**How it's done:** The diameter of the drum is dependent on the internal and external cone angles of the segments. For a column with an angular deflection of 10 degrees per segment, the drum diameter is approximately 4 times the column diameter. When the column is extended by the drive mechanism, the spring

through the center holds the segments tightly together. The column is stiff in compression because an axial force on the free end is transmitted through the column by the nesting segments. The bending rigidity of the column can be increased by increasing the spring tension or by tightening a cable through the center. If the column requires electrical instrumentation at the free end, electrical wires may be passed through the center of the spring or tension member. All of the segments may be lubricated to reduce friction at the contact surfaces.

### Notes:

1. This stowable column would have application in remote locations for such purposes as boring for

(continued overleaf)

soil samples and supporting electronic and optical sensors.

2. Related innovations are described in NASA Tech Briefs B63-10200, May 1964, and B64-10011, May 1964. Inquiries may also be directed to:

Technology Utilization Officer  
Jet Propulsion Laboratory  
4800 Oak Grove Drive  
Pasadena, California, 91103  
Reference: B65-10191

**Patent status:** NASA encourages the immediate commercial use of this invention. Inquiries about obtaining rights for its commercial use may be made to NASA, Code AGP, Washington, D.C., 20546.

Source: Earle A. Howard and George M. Holtz  
(JPL-686)